EPA REGION 10
BUNKER HILL MINING AND METALLURGICAL
STANDARD OPERATING PROCEDURES FOR
ELECTRONIC DATA DELIVERABLE
SUBMITTAL

VERSION 1.0

June 2, 2005

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1.0   INTRODUCTION

EPA Region 10 has adopted STORET as the repository for environmental data collected in the Bunker Hill Mining and Metallurgical Complex Superfund site Operable Unit 2 (Bunker Hill Box) and OU3 (Coeur d'Alene Basin). Human health related data is not included in this database. STORET is a national EPA standard that has been in use since the 1970s and which has evolved to the current Version 2.0 (modernized STORET). The STORET repository consists of an underlying Oracle database, the STORET Interface Module (SIM) data loader and a web portal for public access to the data.

These Standard Operating Procedures (SOPs) and standardized electronic data deliverable (EDD) specifications have been developed to facilitate entry of data into STORET.

This document is organized into the following sections:

1. INTRODUCTION – This section provides some general information about STORET, submittal of EDDs in the proper format, and how to access STORET and Bunker Hill Mining and Metallurgical Data.

2. DATA SUBMITTAL – This section describes submittal procedures for completed data files to be uploaded to EPA Region 10 instance of STORET.

3. DATA FORMAT – This section provides guidance on compiling acceptable electronic data deliverable specifications, including specific guidance for Project, Station (Location), and Results data submittals.

4. SPECIFIC SUBMITTAL GUIDANCE – This section provides additional detail and guidance on submittal preparation. Each EDD is discussed individually.

1.1   Compliance with these EDD Specifications

This SOP has been developed for submission of data collected in support of the Bunker Hill Mining and Metallurgical Complex Superfund site and applies to any contractors or agencies directed by EPA Region 10 to collect data in support of this project. EPA Region 10 may also identify additional data sets for inclusion in STORET.

The specifications for this EDD should be reviewed prior to development of a field sampling plan to ensure that all required data is collected and to resolve any potential data issues such as proper identification of stations (sampling locations), whether existing or new.

For questions regarding compliance with this SOP and the EDD specifications, please contact:

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1.2   Public Access to STORET

STORET data collected in support of the Bunker Hill Mining and Metallurgical Complex Superfund site are available online on the Region 10 instance of STORET at www.storet.org, and at the national STORET web site at www.epa.gov/storet. Updates to the National STORET data repository are made on a monthly basis, whereas updates to the Region 10 instance of STORET are performed on a regular basis for the project.

In addition to the public data portal, this National STORET website includes open-source code for the database, free data management applications, links to the widespread STORET user community, technical support from EPA and open-source STORET tools. The Region 10 STORET website contains interactive maps for the Coeur d'Alene Basin as well as query and data extraction tools.

2.0   DATA SUBMITTAL

Data should be submitted in tab-delimited text files prepared in accordance with the guidelines provided in this SOP and the EDD Specifications defined in the Appendices.

All data files should be reviewed for completeness as well as compliance with these EDD Specifications prior to submittal to EPA Region 10. The submitting contractor/agency is responsible for the content and quality of data provided.

Unless directed otherwise, completed data files should be sent to EPA Region 10 via e-mail or on CD-ROM. Each submittal should be accompanied by a cover letter that includes the following information:

- Submitting Contractor/Agency Name, and Physical Address
- Point of Contact Name, Phone Number and E-mail Address
- Date of Submittal
- Data File Type, Data File Name, Number of Records
- Project, Contract or Other Information to Identify Data Set
- Comments Regarding Data Submittal

Region 10 is in the process of implementing WebSIM, an online utility that will allow data submitters to upload their CDA EDDs directly to STORET over the Internet. Access to this data loading tool will be provided through www.storet.org and data users

are encourage to visit this website for updates on the deployment of the Region 10
implementation of WebSIM.

For questions regarding the preparation and submittal of data files and submittal of new
data codes (see Section 3.2), please contact:

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3.0 DATA FORMAT GUIDANCE

This section provides information on the format of electronic data deliverable files.
General information applicable to each electronic deliverable file is provided here,
specific guidance for each type of submittal is provided in Section 4.0. There are three
general content areas defined in this SOP for STORET: Project, Station, and Results.
Each content area is described below and information is provided about how each type of
data should be formatted and submitted. The detailed specifications for submitting
Station, Project and Results data deliverables are provided as Appendices. Each
Appendix contains a brief description of the required data and format, a template for
preparing the EDD file with example data, and required data codes associated with each
submittal.

3.1 Format of Electronic Data Files

Data must be submitted in tab-delimited text files. Commonly available software
products such as Microsoft Access, Excel, Lotus 1-2-3, Notepad and Wordpad can
generate such tab-delimited files. The files should not include additional delimiters such
as quotation marks or commas. Tabs should not be included within the actual data that is
to be formatted. Each text file should include only data to be loaded to STORET, column
headers should not be included. Each file should be provided with the .txt filename
extension.

3.2 Requests for Additional Data Codes

STORET data submittals are characterized by specific attributes which impart additional
meaning to the data. A data submitter must assign these codes as part of their electronic
deliverable. In some cases, a code for the attribute may not already be available in
STORET and an additional code may need to be developed.

EPA will consider all requests for additional data codes. The lists of data codes provided
in this SOP should be carefully reviewed for a suitable code before a new one is
requested. In the case that no suitable data code exists, a new data code may be requested.

A brief justification and a suggested short name, long name, and description are required with any new data code request. Local Analytical Method codes (project-specific) are allowed in STORET, but if it is a common or regularly used method, it should be submitted for EPA consideration. Please note that there is an estimated two week timeframe between submittal of data code requests and approval of new data codes. It is important to note that all codes submitted for inclusion in the master STORET repository are maintained by EPA Headquarters, and approval is not guaranteed.

4.0   SPECIFIC SUBMITTAL GUIDANCE

4.1   Project Electronic Deliverable Files

EPA Region 10 defines a project as a discrete sampling event or series of events conducted by a specific contractor or agency. The event can span several days or weeks. Additionally, a project is generally defined as all the work and data associated with a field sampling plan. A project is defined in STORET by a Project ID and Project Name. The Project ID consists of an 8 character alphanumeric code, and the Project Name includes a brief description of the project (up to 60 characters).

4.1.1   Existing Projects

In the case that data is provided for existing projects, the Project ID, already identified in STORET must be used in any electronic data submittals. For questions regarding existing Project IDs, please contact EPA Region 10 via the contacts provided earlier.

4.1.2   New Projects

A Project Electronic deliverable is required for any new projects. A new Project ID should be created either as a meaningful abbreviation of the Project Name or alternatively may follow an existing Organization-defined numbering scheme that identifies the project. The Project ID should include information that will enable the appropriate project to be identified. The Start Date, Duration and Purpose are also required when defining a new project.

Additional format guidance for preparing the Project Electronic Deliverable as well as a data template with example data and any applicable data codes are provided in Appendix A.

4.2   Station Electronic Deliverable Files

EPA Region 10 defines a station as a location at which a data collection event takes place, such a collection of a field sample, measurement of field parameters or evaluation of environmental habitats. In general, a station may be defined as a point, a line (transect, ribbon walk, etc.) or a polygon (area). For points, discrete geographic coordinates should be provided, for lines and polygons, coordinates for the centroid or other similar spatial

orientation should be provided. The only valid exceptions for omitting geographic coordinates are quality control locations (e.g. trip blanks associated with generic or multiple sampling locations), or historical data sets with unknown or undocumented coordinate locations.

The Station EDD actually contains two submittal formats represented by the following tabs in the Appendix B spreadsheet: "Station Format" and "Additional Location Format". The "Station Format" is the submittal requirement that will be implemented most often and should be used whenever a station is represented by one set of X-Y coordinates, whether the station is a discrete point, or a centroid of a polygon or a line. In STORET this station type is designated as a "Point of Record". The "Additional Location Format" submittal should only be used if additional coordinates can be provided for stations represented as polygons and lines. In such a case the "Station Format" submittal should be prepared for the centroid of the station, and supplemental coordinates for the boundary of the station would be submitted using the "Additional Location Format".

4.2.1   Existing Stations

STORET contains over 5,000 stations established for the Bunker Hill Mining and Metallurgical Superfund Project. All STORET data submitters are required to thoroughly review the list of valid and existing stations provided in the "Stations" tab of the Appendix B - Station Information spreadsheet (stations list). All current STORET stations are listed in this worksheet, even for locations without coordinates. The existing stations list contains detailed information including Station IDs, Station Names (aliases), Establish Dates, Descriptions, Influence Area (site area or designation), Elevation, and Spatial Coordinates, if available.

In addition to the STORET station list, a series of basin maps are provided with this SOP which depict existing stations with valid coordinates. Maps of stations addressed in the Remedial Investigation / Feasibility Study (RI/FS) are provided, as well as maps of stations associated with "The Box", and stations to be sampled as part of the Basin Environmental Monitoring Plan (BEMP). The maps are fully text-searchable to facilitate easy navigation and identification of stations. The station naming convention used in the maps is consistent with the STORET Station ID field, except that for the RI/FS maps no hyphen was used for the station labels.

If a station has been established in STORET, a Station EDD is not required. Specifically, stations indicated for sampling in the Coeur d'Alene BEMP already exist in STORET and do not require a Station Electronic Data Deliverable. Data format guidance, data templates with example data, and any applicable data codes required to prepare station data submittals are provided in Appendix B.

4.2.2   New Stations

Stations that have not been established in STORET will require a Station Electronic Data Deliverable. The latitude and longitude information is required for each new station and

data submitters are required to use existing site and station naming conventions and prefixes wherever possible to maintain consistency with CDA project data sets. New "Influence Areas" or station name prefixes and suffixes must be approved by EPA Region 10 prior to their use and submittal in the Station EDD. Table 1 below summarizes the abbreviations and definitions which are currently used for the CDA project.

Table 1 – Coeur d'Alene Project Prefixes

Prefix	Definition
BC	Big Creek
BV	Beaver Creek
BH	Bunker Hill Locations
CC	Canyon Creek
CL	Coeur d'Alene Lake
CUA	Common Use Areas
DA	Depositional Area
LC	Lower Coeur d'Alene River
MC	Moon Creek
NF	North Fork of the Coeur d'Alene River
NM	Nine Mile Creek
PC	Pine Creek
PR	Prichard Creek
SF	South Fork of the Coeur d'Alene River
SJ	St. Joe River
SR	Spokane River
SD	School / Day Care

For new stations, in addition to the Station EDD submittal, a .PDF version of the sampling map used or created by the field crew during the sampling event must also be submitted. An informal sketch of the area, including some landmarks and distances is adequate. Alternately, contractors may submit GIS shapefiles/coverages or CAD drawings of their station locations. If GIS or CAD data is provided, adequate metadata must accompany the submittal to define the projection and horizontal and vertical datums used.

4.3   Results

In STORET, results are related to field activities which in turn are related to stations. Submittal requirements for station information were treated in detail in the preceding section. In STORET, a field activity is defined as any data collection event. This can include collection of a sample or making measurements or observations in the field at a valid station. There is no specific electronic deliverable for field activities. Field activity information is incorporated into the Result EDDs. The portion of the Result EDDs that

pertain to field activities include: Activity ID (Sample ID, Measurement/Observation ID, or Biological Activity ID), Activity Type, Activity Date and Activity Category.

In some cases additional results may be submitted for existing field activity information. For results that should be associated with a previously-established field activity, provide the results submittal described below and make a note in the comment section of the data submittal cover letter indicating that the field activity information already exists in STORET.

There are three types of result files that may be submitted: **Analytical Result** for field samples and their associated laboratory analytical results, **Field Measurement / Observation Result** for field measurements and water level information, and **Biological Result** for biological samples or species surveys. Required and optional data fields are described in detail in Appendix C, D and E, respectively, for each type of Result Electronic Data Deliverable. Additional guidance for each type of deliverable is also provided below.

4.3.1 Analytical Result

Field sample and non-biological laboratory analytical result information are provided in this electronic deliverable. Results from biological sampling, or measurements and observations taken in the field should be provided in separate deliverables as discussed below in Section 4.4.3 and 4.4.2, respectively.

Laboratory data submitted for STORET must be validated and the most-valid value selected for each station-characteristic-method combination. The most-valid value is identified in the Result Status column of the deliverable, with the letter "F" designating a final and validated submittal. All other data should be reported as "P" for preliminary. Please note that only final data is viewable through the national STORET data portal, whereas, all data (designated by "P" or "F") can viewed through the Region 10 instance of STORET.

Laboratory and Validation Data Qualifiers are maintained in the Result Comment field. Laboratory flags should be provided first, followed by validation flags in the following format: Laboratory Flags/Validation Flags. Any additional comments should follow these flags in a new sentence.

Format guidance for preparing the Analytical Result Electronic Deliverable as well as a data template with example data, and any applicable data codes are provided in Appendix C.

4.3.2 Field Measurement/Observation Result

Field Measurement or Observation Result information is data collected in the field, such as dissolved oxygen, pH, water level data, etc. taken with a probe, field test kit or other device designed to measure conditions in the field. Measurements performed in a

laboratory should be provided in the Analytical Result EDD and Biological information should be provided in the Biological Result EDD described in the next section.

In addition to the field measurement/observation text file, additional field forms may be provided in .PDF format. Format guidance for preparing the Field Measurement / Observation Result Electronic Data Deliverable as well as a template with example data, and any applicable data codes are provided in Appendix D.

4.3.3   *Biological Result*

Biological result information or data about groups, counts and individual species including samples and their associated laboratory analytical results are provided in this deliverable. Non-biological results are provided in either the Analytical Result or Field Measurement / Observation Result deliverables described above. Biological results may include a population survey, information about specific groups within that population and information about individuals within the group. Alternately, these results may be about only a population, only a group or only an individual. For each type of result, a Biological Result Group must be identified.

Biological Results Groups – Biological Results Groups (BRGs) are established to associate results with the appropriate group or individual. Each type of BRG is discussed below:

- For a multi-taxon population census, a biological result group will be established and associated results showing the species as a characteristic and the result value as a count.

- For a single taxon group summary, a second biological result group will be established if the group belongs to a larger population (which would have its own BRG) or a new BRG will be established if there is data for the single taxon group, such as count of individuals, activity, etc.

- For a single taxon individual with results a third biological result group will be established if the individual is part of both a group and a population with results related to those BRGs, etc.

Biological results may include traditional laboratory analyses or field observations. Both types of information are provided in this deliverable. It is important that the correct BRG be associated with each biological parameter evaluated.

Multiple activities may be provided in the same deliverable file. In addition, multiple activities may be performed for a single individual. For example, one individual may be part of a population census (first field activity), a group behavior analysis (second field activity), and have a physical description or laboratory sample (third field activity).

Format guidance for preparing the Biological Sample Result Electronic Deliverable as well as a data template and any applicable data codes are provided in Appendix E.

4.3.4 Trip QC Information

Quality Control information can be submitted either in association with specific sampling locations or more generically as part of a sampling event or "Trip". Typically field blanks collected at a specific station or for dedicated equipment such as a bailer used at a specific location should be submitted using the Analytical Result EDD (Appendix C) as described above in Section 4.3.1. In such cases, QC measures implemented during sample collection can be assigned or clearly related to a particular station and should be considered a regular result.

When QC results are obtained as part of a broader sampling event or trip, and cannot be logically or easily associated with a specific station (sample collection point), then QC information should be submitted via the Trip QC Information EDD (Appendix F). Typically trip blanks that are carried in a cooler and which may be associated with several stations or batches of samples should be submitted using Trip QC Information EDD.